

Chapter 2: Integrity, Completeness and Comprehensiveness of the Learning Environment: Meeting the Basic Learning Needs of All Throughout Life

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CONCEPTUAL BACKGROUND

In this chapter I argue that ‘meeting the basic learning needs of all throughout life’ is a challenge significantly more comprehensive and complex than that of ‘providing basic education for all.’ The original meaning of the verb ‘to provide’ (*pro videre*) is ‘to foresee.’ In conjunction with the word ‘education’ it is commonly interpreted as ‘to furnish,’ ‘to supply,’ or ‘to deliver.’ The notion of delivery is tied in with a paradigm that is worth challenging, namely the idea that learning consists of acquiring pieces of information or knowledge and that, in order for that to happen, such information should be delivered to the learner. In this view, information and knowledge are essentially conceived of as commodities. Similarly, the learner is seen as a recipient of information and of prompts to process information, rather than as a participant in a dialogic process to create meaning. Creating the conditions of learning, in that same view, boils down to an external intervention, aiming at optimizing what is being delivered to the learners, and how they are prompted to act upon it, so as to attain defined learning goals in the most effective and efficient ways possible. No doubt, multiple decades of research and practice, particularly within the instructional design tradition, have shown the considerable value of this view. Both the strength of past achievements and the need for fundamental review and reconceptualization stand out in the ongoing debate as reflected in such overview works as Jonassen (Ed.) (1996); Reigeluth (Ed.) (1999); Dills & Romiszowski (Eds.) (1997). These concerns have similarly been discussed in numerous special issues or special segments of *Educational Technology* since Volume 31, Number 5, introduced in that issue by Duffy & Jonassen (1991). A related debate has been going on in a series of issues of *Educational Researcher*, starting with Volume 25, Number 4, of which I particularly note Greeno’s (1997) and Sfard’s (1998) contributions. In addition, almost the entire Volume 23 of the *Review of Research in Education* focuses on these matters, particularly the chapters by O’Connor (1998) and Salomon & Perkins (1998).

Notwithstanding the important advances made, as they transpire from the above debate and developing innovative practice, many of our views of learning remain incomplete. Particularly, discourse and action continue to focus too exclusively on learning pursued for specific purposes and confined to narrowly defined contexts, such

as the classroom and training environment, dealt with in isolation from one another, without recognizing the larger context of which they are part.

The importance of attending to contextual factors was brought out as early as 1978 by McAnany. It was later highlighted by Visser & Buendia Gomez (1989), particularly in relation to the often haphazard circumstances that surround interventions to facilitate learning in developing countries. If such circumstances are not taken into account in the design process, the outcome of the interventions is likely to depend more on context than on the conditions put in place by design. Jonassen & Rohrer-Murphy (1999) make the same point with reference to a different rationale, namely the consideration that learning and action are dialectically related, and that learning therefore is not a precursor to activity, but that it emerges from conscious engagement in and reflection on it. As "activity cannot be understood or analyzed outside the context in which it occurs" (p.62), there is a powerful argument for broadening the scope beyond the traditional boundaries of regular design and planning concerns. Tessmer & Richey (1997) also indicate the need not to limit design concerns to the intervention as such, but to consider the context of which learning, performance *and* design are part. Visser & Berg (1999) emphasize this need from a yet wider perspective, namely the *environmental* responsibility of the designer of learning conditions. If learning is to be conceived as all-pervasive and lifelong, and if it is engaged in by both individuals and communities, then any particular intervention cannot be seen as disjointed from the totality of the learning environment, nor must it be conceived of in isolation from the long-term learning history of the learning entity (or entities) involved. Any intervention, independent of the question how effective it is in terms of traditional design criteria, can therefore be anywhere between the extremes of being detrimental to the learning environment at large or contributing to its development in positive ways.

This consideration can be further placed in the context of an ecological vision of the learning environment. Visser (1999a) argues that an ecological vision is necessary to overcome the fragmentation of existing views of learning. Both a broadening and the development of multiple and complementary perspectives of the learning landscape are required. Attention to the whole is as much needed as care for detail. An ecological awareness is required to see how the different pieces of the learning environment as a whole hang together, interact with each other, function in the context of the whole, and allow the whole to acquire a meaning over and above the sum of its parts.

Flexibility is an important dimension of the learning ecology proposed in this chapter, and it has to do with more than just delivery mechanisms. There are other important criteria that characterize an environment[2] that is truly adequate for promoting and facilitating learning in the sense in which I refer to learning in this chapter, namely as an essential requirement for sustainable growth. Some of the key characteristics of such a learning environment have to do with its capability to accommodate interaction, collaboration, networking and adaptive growth and its ability to foster learning that is rooted in the real world, i.e. that goes beyond the traditional obsession with disciplinary knowledge and recognizes the wholeness – or consilience (O. E. Wilson 1998) – of knowledge.

LEARNING IN A TURBULENT WORLD

To place the above reflections in context, consider the following. Hominid beings, in varying stages of development, have populated the earth for millions of years. Ten thousand years ago the human population is estimated to have been some eight million worldwide. This was the time when, due to changing circumstances and necessity, agriculture became the norm, rather than an add-on to hunting and gathering, causing the human population to rise exponentially ever since (Tudge 1998). At the beginning of the Christian era our number is thought to have been some 250 to 300 million {the lower estimate is cited by Koestler (1989, originally published 1967); the higher estimate can be found in Sakaiya (1991)}.[3] Sixteen centuries later the global population had risen to 500 million. It took another two centuries for it to double to one billion. The three billion mark was reached only a century and a half later in 1960. At the time of writing, that number has doubled to six billion. "It took all of human history for the world's population to reach 1 billion in 1804, but only 156 years to reach 3 billion in 1960. Now, 39 years later, the number has doubled" (Vanderkam 1999).

What will happen next is an open question. Different predictions exist. One thing is clear, however – to quote Arthur C. Clarke (1992, p.169) only slightly out of context – "the future isn't what it used to be." We live in a time of turbulent change and it is here to stay for the foreseeable future. We have reached a critical point. The question 'What caused what?' may be irrelevant. However, the fact that we are reaching the limit of how the resources of the planet Earth can sustain the processes we have put in place has arguably something to do with the increasing population pressure. The phenomenon of explosive change, demonstrated by the demographic figures cited above, is reflected in many other areas, such as the development of technology and science. It can be argued that the dramatic changes in population growth would not have been possible had there not been similarly dramatic development in, for instance, agriculture and medical science. Reversing the direction of causality, it can equally be argued that, as we continued to multiply, there was an ever-greater need for technological solutions to the problems generated by demographic growth. We humans demonstrate an incredible capacity to drive things to the edge, thereby creating problems at an increasing rate that require solutions that themselves drive things even further to the edge, thus calling for problem solving at the subsequent level, and so on.

Koestler (1989/1967, p.319) has called this the age of climax. He notes that "our mind is willing to accept that things are changing, but unable to accept the *rate* at which they are changing, and to extrapolate into the future." Things become particularly problematic when even the rate of change is changing. Pais (1997, p.474) refers in another way to how such turbulent change boggles the mind and frustrates our capacity to manage the world the way we previously did. He refers to two time scales, one expressed in the roughly 20-year timeframe that marks the leadership of a particular human generation before it passes on to the next one, and the other "the period after which existing information and technology become obsolete. A critical point is reached when the second period becomes shorter than the first one." Pais goes on to suggest that then "the experience of the older generation is no longer all that helpful" and notes that the crucial changeover perhaps fell in the nineteen-sixties, i.e. a generation and a

half ago. Those old enough to remember may recall that, indeed, that was about the last time when school graduates could have the illusion that they had prepared themselves for life and that the time of learning was over. Until only a few decades ago it was therefore possible to conceive of learning – even though wrongly – as a process that could serve the purpose of adapting to change by having each generation prepare the schooling conditions for the next one. The need to attend to adjustments required in later life through the occasional refresher course or, if need be, retraining program, could then be seen as a sensible add-on correction to an otherwise adequate model.

CONSTRUCTIVE INTERACTION WITH CHANGE

The term ‘learning’ generally remains poorly defined in most of the educational literature. Often it is a taken-for-granted concept, implicitly defined as the consequence of instruction.[4] Consequently, we know much about the instructional process, but little about learning. A simple experiment shows the anomaly of this situation. Ask mature adults what their most profound and relevant learning experiences have been. Rarely will one get a response that is even slightly reminiscent of the above implicit definition.

To measure the effectiveness of instructional processes we look at learning outcomes. Such learning outcomes are typically defined in terms of particular skills, intellectual ones or motor behaviors, and sometimes tendencies to apply particular behaviors in appropriate circumstances, i.e. attitudes. Little do they reveal about why we acquire such skills and about the human and social processes involved. Particularly, the tendency to interpret learning as the result of instruction has resulted in serious under-attention to any form of learning that is not the consequence of an instructional intervention. Moreover, it hampers, as Burnett (1999) argues, creativity in thinking about new approaches to learning and of ways to facilitate it. Turning the argument around, and referring to Felman’s (1982, p.21) discussion of statements by Socrates and Freud regarding the “radical impossibility of teaching,” Burnett observes that “a *recognition* of the “impossibility” of teaching, enables and encourages the development of new and innovative approaches to pedagogy and learning.”

I have referred above to what most essentially characterizes the present juncture in time: turbulent change and complexity in a world that is increasingly interconnected in the sense that what happens in one place and at one particular moment can – but does not necessarily – set off dramatic developments elsewhere. Popular books like Waldrop’s (1992) *Complexity: The Emerging Science at the Edge of Order and Chaos* abound with compelling examples of everyday phenomena, in addition to those that pertain to the most profound questions posed by the scientific community, that leave little doubt about the relevance and necessity of any ordinary citizen’s ability to understand such phenomena and to interact with them in intelligent and constructive ways. The ability to see the whole as well as the detail; the disposition not to feel trapped in a false dilemma of ‘either-or’ choices between different levels of the same reality; the readiness to appreciate the limitations of Aristotelian logic, these are all rapidly becoming essential ingredients of *literacy*, in a redefined sense, for those who are to play effective and responsible roles in the world of the twenty-first century.[5] The

need to move beyond narrow concerns with disciplinary knowledge in recreating the world of learning is argued by Nicolescu (1999) with particular reference to the four pillars of education proposed in the Report to UNESCO of the International Commission on Education for the Twenty-first Century, *Learning: The Treasure Within*, (Delors *et al.*, 1996). Nicolescu thus calls for approaches that address “the open totality of the human being and not just one of its components” (p.6).

The question of complexity, its recognition not as a problem to be solved in terms of the paradigms of the past, but rather as a different level of dealing with reality, is crucial to the new meaning of literacy as alluded to in, for instance, the *Hamburg Declaration on Adult Learning* and the *Agenda for the Future* adopted by the Fifth International Conference on Adult Education (CONFINTEA V) in July 1997. The Declaration (p.4) conceives of literacy broadly as “the basic knowledge and skills needed by all in a rapidly changing world.” It refers to such literacy as “a fundamental human right,” not only because it is “a necessary skill in itself,” but particularly as it is often “one of the foundations of other life skills.” The challenge to ensure that this human right can be asserted lies in more than the creation of the conditions of learning in the immediate sense. It will often mean, in the words of the Declaration, “the creation of preconditions for learning through awareness building and empowerment.” While this distinction reveals a conception of learning that is more limited than the one advocated in this chapter, the point is well taken that the societal responsibility to meet the basic learning needs of all throughout life entails much more than merely establishing educational facilities in the traditional sense of the word. It specifically also implies creating a social and human environment in which learning is seen to be ‘the right thing’ to do and appreciated as something that is aesthetically pleasing. In short, it requires a culture of learning to have evolved in society.

The *Agenda for the Future* (p.16), published in conjunction with the *Hamburg Declaration on Adult Learning* (1997), specifies that “everywhere in the world, literacy should be a gateway to fuller participation in social, cultural, political and economic life.” It must therefore be socio-economically and culturally relevant, allowing communities to “effect their own cultural and social transformations,” enabling women and men to “understand the interconnections between personal, local and global realities.” Connecting to personal experience, which involves body and mind together in an undivided way, implies naturally a sense of the complex, of the unity of knowledge, and of multiplicity of levels of reality. It requires strategies to facilitate learning that are radically different from much of current pedagogical practice (e.g. Lederman, 1999; Papert, 1993; Resnick, 1998; Resnick & Wilensky, 1998; Schank & Cleary, 1995; Schank & Cleave, 1995; Turkle & Papert, 1990; Wilensky, 1991).

In a sense, lifelong learning is a redundant notion. Any real learning cannot be but *lifelong*, as it involves the whole human being, i.e. all of one’s life. The main reason why we needed the term may be because common discourse has likened learning to schooling, and schooling, in the common conception, is seen as restricted to the school age. Earlier literature on lifelong learning, such as the report to UNESCO of the International Commission on the Development of Education, *Learning to be: The World of Education Today and Tomorrow* (Faure *et al.* 1972), therefore puts considerable

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